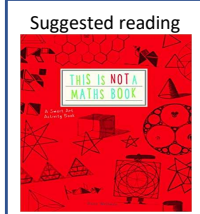


Year 7 – Algebraic Thinking

Equality and Equivalence



Want to know more? Scan the QR code to visit the curriculum overview for Year 7 Maths, including topic summaries, key words, and books that you may want to read in your own time



What do I need to be able to do?

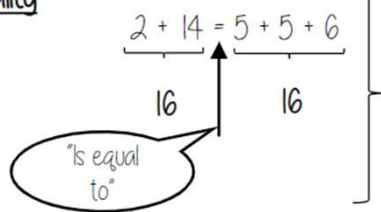
By the end of this unit you should be able to:

- Form and solve linear equations
- Understand like and unlike terms
- Simplify algebraic expressions

Keywords

- Equality:** two expressions that have the same value
- Equation:** a mathematical statement that two things are equal
- Equals:** represented by '=' symbol – means the same
- Solution:** the set or value that satisfies the equation
- Solve:** to find the solution
- Inverse:** the operation that undoes what was done by the previous operation (The opposite operation)
- Term:** a single number or variable
- Like:** variables that are the same are 'like'
- Coefficient:** a multiplicative factor in front of a variable e.g $5x$ (5 is the coefficient, x is the variable)
- Index:** the power
- Expression:** a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)

Equality

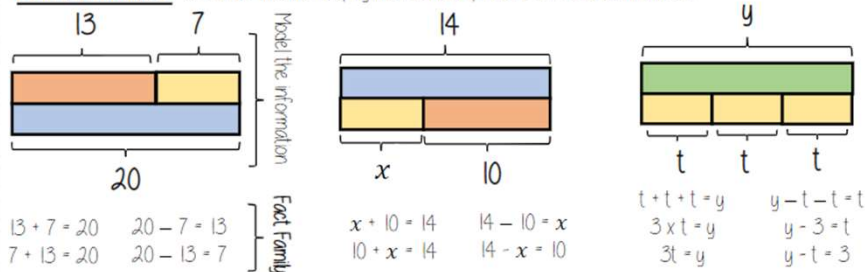


The sum on the left has the same result as the sum on the right

Saying it out loud sometimes helps you to understand equality

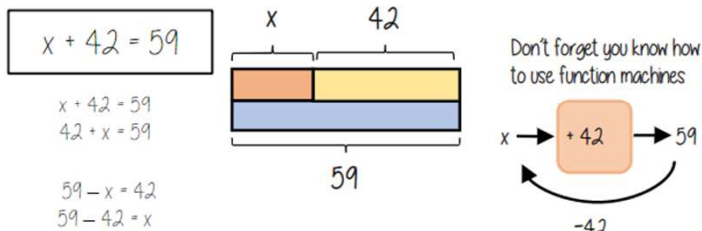
Fact Families

Use a bar model to display the relationships between terms and numbers

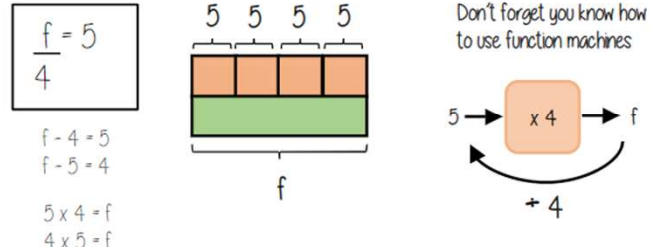


Solve one step equations (+/-)

There is more to this than just spotting the answer

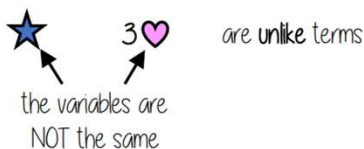


Solve one step equations (x/+)

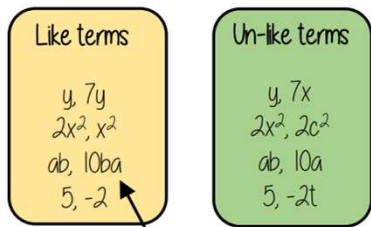


Like and unlike terms

Like terms are those whose variables are the same



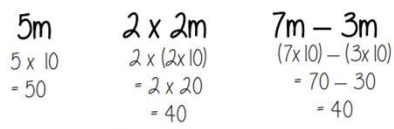
Examples and non-examples



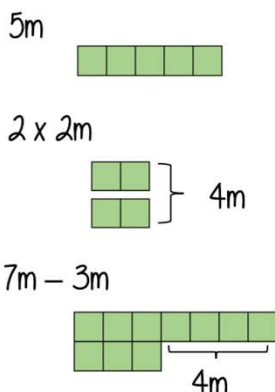
Note here ab and ba are commutative operations, so are still like terms

Equivalence

Check equivalence by substitution
e.g $m = 10$



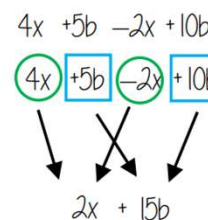
Repeat this with various values for m to check



Collecting like terms \equiv symbol

The \equiv symbol means equivalent to
It is used to identify equivalent expressions

Collecting like terms
Only like terms can be combined



Common misconceptions

$$2x + 3x^2 + 4x \equiv 6x + 3x^2$$

Although they both have the x variable x^2 and x terms are unlike terms so can not be collected